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ALEI UPDATES: Agricultural Input Trade

Updates on Agricultural Resources and Environmental Indicators

Natural Resources and Environment Division Economic Research Service, U.S. Department of Agriculture 1995 Number 10

U.S. Exports and Imports of Agricultural Inputs, 1990-94

- During 1990-94, U.S. exports of fertilizers, pesticides, seeds for planting, and farm machinery all exceeded imports. Trade surpluses in these agricultural inputs in 1993-94 were highest for farm machinery.
- Annual fertilizer exports averaged \$2.5 billion (mostly to Asia), farm machinery exports \$3.0 billion (mainly to Canada and Western Europe), pesticide exports \$1.3 billion (primarily to Western Europe) and seed exports \$0.7 billion (largely to Western Europe, Canada, and Mexico).
- Annual fertilizer imports averaged \$1.6 billion (mostly from Canada), farm machinery imports \$2.1 billion (primarily from Western Europe and Japan), pesticide imports \$0.7 billion (mainly from Western Europe), and seed imports \$0.4 billion (largely from Canada, Chile, and Netherlands).

This issue of AREI UPDATES summarizes U.S. agricultural input trade as compiled from data collected by the U.S. Department of Commerce. The products included in the major agricultural input categories are described in the ERS publication, *Foreign Agricultural Trade of the United States*, fiscal-year supplement.

Fertilizer—The United States is a major exporter of phosphate and nitrogen products and a major importer of potash. The value of fertilizer exports has varied in recent years from \$3.0 billion in 1991 to \$1.8 billion in 1993. The share of U.S. exports to Eastern

and Western Europe has fallen while the shares to North and South America and Asia have grown. Canada, Mexico, and Trinidad-Tobago are the primary sources of fertilizer imports.

Pesticides—The value of U.S. exports remained stable at \$1.3 billion whereas imports grew from nearly \$0.5 billion to \$0.7 billion. Herbicide products dominated both imports and exports. Proportionately, exports to Western Europe fell while those to North and South American countries increased. Pesticide import shares by region remained stable.

Farm Machinery—Exports increased from \$2.9 billion in 1990 to over \$3.4 billion in 1994, while imports rose from \$2.2 billion to \$2.6 billion. Exports were mostly large tractors and self-propelled combines while imports included smaller tractors and other equipment. Major export and import countries were Canada, UK, Germany, and Japan.

Seed—The value of exports reached around \$0.67 billion in 1991 and 1992 then declined to \$0.62 billion in 1993 and 1994. Corn, forage, and vegetable seeds were the major exports by value. Annual seed imports were valued at \$0.5 billion in 1991 and 1992 but declined to \$0.4 billion in 1993 and 1994. Vegetable seeds are the major seed import category. Seed imports from Asia fell relative to those from South America and Western Europe.

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About AREI UPDATES

AREI UPDATES is a periodic series that supplements and updates information in Agricultural Resources and Environmental Indicators (AREI), USDA, ERS, AH-705, Dec. 1994. UPDATES report recent data from surveys of farm operators and others knowledgeable about changing agricultural resource use and conditions, with only minimal interpretation or analysis. Please contact the individuals listed at the end of the text for additional information about the data in this UPDATE. If you would like to be added to the mailing list or have other questions about AREI UPDATES or AREI, contact Richard Magleby, (202) 219-0436.

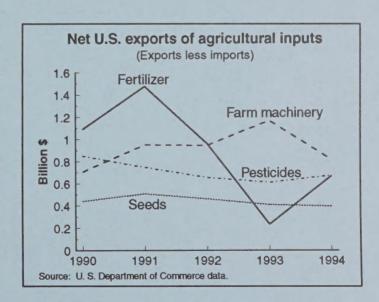


Table 1—Value and regional and country shares of U. S. fertilizer exports

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Table 2—Value and regional and country shares of U.S. fertilizer imports

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e 0.6 0.6 8.3 4.3	3.8	4.1	Eastern Europe and		
8.3 4.3	9.0	0.2	former Soviet Union	4.1	2.6
8.3 4.3			Asia	2.9	2.2
	0.1	0.0	Israel	2.0	1.3
			Saudi Arabia	0.2	0.2
Asia 52.7 60.8 58.5	5.65	57.7	Other	0.7	0.7
0.00	16.0	27.6	900	0	0
Republic of 3.2 2.5	6.4	2.6			
6.8 6.1	8.9	8.9	Africa	0.1	0.1
10.	10.4	8.8			
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by USDA, ERS.

Table 3—Value and regional and country shares of U.S. pesticide exports

	1990	1991	1992	1993	1994	
			\$ Million			
Total value	1,344	1,226	1,265	1,259	1,369	Tota
Regional and country shares:		Pe	Percent of value	lue		Regi
North and Central America Canada Mexico Costa Rica Other	26.3 18.5 2.9 3.5	26.8 17.9 3.8 3.5	27.4 18.0 3.5 3.8	30.1 20.3 4.4 1.9	23.7 23.7 2.3.7 2.3.5 3.5	ž
South America Colombia Brazil Argentina Other	2.55	£2.2.4 5.5.2.4 5.5.5.2.4	2.5.0 2.0.0 2.0.0 5.0.0	13.7	2.0 2.0 3.0 3.0 3.0	й s
Western Europe United Kingdom Netherlands Belgium France Germany Other EC-12 Total EC-12 Switzerland	37.2 2.1 6.5 3.7 35.5 1.6 0.0	0. w. r. s. 4. w. 9. 0. 0. 0. v. 4.	25.7 4.2 7.6 7.6 7.6 7.6 7.6 1.5 1.5 0.0	26.2 4.6 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	23.5 2.7 2.8 6.4 4.8 2.1 2.1 2.3	
Eastern Europe and former Soviet Union	7.0	7.0	0.0	2.1	0.5	B 4-
Asia Singapore China South Korea Taiwan Japan	20.4	24.7	26.1.2.2.1.7.2.1.2.1	22.1	7.77	As Oc
Other Oceania Australia Other	3.0	2.7	3.6	3.4	2.6	A A
Africa Rep. S. Africa Other	1.1	1.5	3.2	2.1	0.1.0	Sour
World	100.0	100.0	100.0	100.0	100.0	

Source: Compiled from U.S. Department of Commerce data by USDA, ERS.

Table 4—Value and regional and country shares of U.S. pesticide imports

	1990	1991	1992	1993	1994
			\$ Million		
Total value	967	517	611	679	869
Regional and country shares:		Pe	Percent of value	alue	
North and Central America Canada Mexico Other	7.7 3.6 2.7	7.5 4.2 2.6 0.8	5.1	9.1 7.3 1.2 0.6	9.2
South America Colombia Brazil Argentina Other	7.1.0 7.1.0 8.0	9.0 9.0 9.0 0.0	8.5.6.5.0	0.00 0.00 0.00	3.8.0.0
Western Europe United Kingdom United Kingdom Netherlands Belgium France Germany Italy Other EC-12 Total EC-12 Switzerland Other Western Europe	62.3 12.7 7.3 7.3 7.3 7.0 1.7 1.7	57.6 14:3 2.2 2.2 3.5 7.5 7.5 7.6 6.0 1.3	5.7.2 15.8 18.3 18.3 18.3 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0	62.7 18.5 3.8 3.5 6.7 6.7 6.7 5.7 5.7 2.0	6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.00
Eastern Europe and former Soviet Union	0.1	0.3	0.5	1.0	9.0
Asia Israel Japan Other	18.7 5.3 11.9	20.3 6.4 11.9 2.0	22.7 5.3 15.3 2.1	17.5 6.5 9.1 2.0	20.4 7.7 11.6 2.0
Oceania Australia		4.1	1.4	1.6	1.6
Africa	7.0	1.1	1.4	1.4	2.1
World	100.0	100.0	100.0	100.0	100.0

Table 5—Value and regional and country shares of U.S. farm machinery exports

	1990	1991	1992	1993	1994
			\$ Million		
Total value	2,943	2,705	2,804	3,144	3,413
Regional and country shares:		9	Percent of value	alue	
A to the state of	72.0	, 0,	2 (/	141	0
Canada centrat America	32.1	28.3	31.0	36.54	35.0
Mexico	7.9	2.8	8.0	8	7.0
Other	3.0	3.6	3.6	5.9	2.9
South America	5.5	7.9	8.3	6.3	7.2
Colombia	0.8	6.0	0.0	1.0	1.2
Argentina	7.0	0.8	1.7	-	10.
Other	4.1	6.2	4.9	4.2	4.1
Western Europe	26.4	26.1	22.2	18.9	17.7
United Kingdom	5.3	3.7	3.5	3.6	3.5
Netherlands	1.3	1.9	1.3	0.0	1.4
France	6.4	4.6	3.8	3.1	3.2
Germany	3.6	5.5	4.4	5.1	4.3
Other EC-12	2.6	9.5	8.0	5.5	4.4
Total EC-12 Other Western Europe	24.8	24.8	21.0	17.9	16.8
Eastern Europe and former Soviet Union	1.5	1.2	1.1	2.2	2.4
0.00	1 71	17.1	14.0	15.2	12.0
000000000000000000000000000000000000000		2 6	2.0	7.0	2.4
Singapore		2.5		7.7	1.7
South Kores		7.0	. c		
Ballow Habos	3.7	0.4	, w	0 00	3.1
Other	7.0	8.5	4.6	7.6	4.5
Oceania	7.0	8.4	6.1	7.0	8.3
Australia	6.7	4.5	5.7	6.5	7.8
Uther	4.0	0.0	4.0	0.0	0.0
Africa Africa	2.7	2.5	2.7	3.1	4.2
Other	1.4		1.4	1.7	2.3
World	100.0	100.0	100.0	100.0	100.0

Source: Compiled from U.S. Department of Commerce data by USDA, ERS.

Table 6—Value and regional and country shares of U.S. farm machinery imports

	1990	1991	1992	1993	1994
			\$ Million		
Total value	2,237	1,754	1,860	1,976	2,596
Regional and country shares:		Pe	Percent of value	ine	
North and Central America Canada	24.7	22.2	19.9	23.9	23.4
Mexico	1.4	1.7	1.7	2.1	2.3
South America	1.1	1.4	1.3	1.2	0.0
Western Europe	63.2	62.7	61.5	56.6	55.7
United Kingdom	1.7	16.5	15.5	2.0	1.7
Belgium	0.9	3.1	2.5	1.3	1.3
France	5.6	5.5	2.0	6.4	4.7
Germany	22.8	25.4	24.8	18.1	17.0
other EC-12	1.4	1,5	1.6	1.7	1.9
Total EC-12	61.9	61.7	60.2	55.3	54.6
Other Western Europe	1.3	1.0	1.4	1.2	1.1
Eastern Europe and					1
former Soviet Union	5.6	3.0	3.9	3.2	3.5
Asia	7.8	10.0	12.4	13.9	15.7
Japan	5.1	6.2	6.8	8.2	6.6
Other	2.7	3.9	5.6	2.7	5.8
Oceania	0.5	7.0	6.0	1.0	9.0
Africa	0.0	0.0	0.1	0.2	0.2
Lorio L	100.0	100.0	100.0	100.0	100.0

Source: Compiled from U.S. Department of Commerce data by USDA, ERS.

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Table 7—Value and regional and country share of U.S. seed exports

		Total value	Regional and country shares:	North and Central America	Canada	Mexico	0 000	Other		Courth America	Chile	Argentina	Other		Western Europe	Denmark	Netherlands	France	Germany	Italy	Other EC-12	Other Western Europe		Eastern Europe and	former Soviet Union		Asta	India	Inalland	LIBMIR	Japan	China (Maintand)	Other		Africa		Oceania	Australia	NIBIDAY MAN	Portd		Source: Compiled from U.S. Depa		
1994		621		31.7	11.0	18.0	8 6	0:-	1.8	. 4		2.9		30.3	1.4	4.7	6.4	2.8	2.3	10.0	2.8	1.1	.2			7.0	2.2	0.0	7.7	0 00	50.0	0.7	2.6	0.6	1.7	2.0		2.1	1.7	1.3	0.3		100.0	
1993		619	lue	33.7	11.8	20.1	8	0:-	7.7		0.0	3.5		30.3	1.4	4.7	.9	1.8	2.0	10.7	1.8	1.1	.7		1	7.2	2.0	4.0	0.0	17 4	17.1	2.3	4.0	8.5	1.2	6.4	1	3.0	1.3	1.0	0.3		100.0	002 40
1992	\$ Million	699	Percent of value	30.7	11.3	17.8	1 6	0:-	5.6	0 0	9.0	2.0		36.1	1.7	4.4	6.3	1.9	2.4	14.8	1.3	2.1	1.4		•	9.0	0.5	0.0		2 40	0.17	۲۰)		8.1	6.0	4.7		6.2	1.4	1.2	0.2		100.0	Act has also
1991		672	Pel	24.8	10.01	13.2	1.4	2	1-7	1.4	9.0	2.0		42.3	1.7	.9	7.2	3.0	2.5	16.2	2.0	2.5	1.0		1	5.7	1.5	0.0	7.7	24.0	2.1.2	4.4	. 1	1.1	0.7	0.4	1	5.5	1.4	1.2	0.2		100.0	A Comment
1990		588		26.4	10.2	14.4	α.	0.	2.7	1.5	9.0	1.0		40.7	1.9	6.4	7.4	1.7	3.4	16.8	1.4	1.9	1.3			2.0	o.8		7.2	7 00	\$2.5	10.0	1 1	8.7	9.0	3.9		7.7	1.5	1.2	0.3		100.0	- demanda
		Total value	Regional and country shares:	North and Central America	Canada	Mexico	00000	Other	South America	Arcentina	Chile	Other		Western Europe	United Kingdom	Netherlands	France	Germany	Spain	Italy	Greece	Other EC-12	Other Western Europe		w	tormer Soviet Union	Romania	Ukraine	Other		AS18	Saudi Arabia	Hong Kong	Japan	South Korea	Other		Africa	Oceania	Australia	Other		World	O o II was built of the

Source: Compiled from U.S. Department of Commerce data by USDA, ERS.

Table 8—Value and regional and country shares of U.S. seed imports

	222				
			\$ Million		
Total value	147	164	506	208	227
Regional and country shares:		ď	Percent of value	alue	
North and Central America Canada Mexico Guatemala Other	33.4 26.1 3.4 1.3	31.4 24.9 3.8 2.5 0.2	32.6 25.4 3.2 3.8 0.1	31.2 22.8 4.5 3.5	33.9 27.2 3.1 3.1 0.3
South America Chile Argentina Other	11.2	11.7	21.2 17.2 3.6 0.4	17.2	18.9 15.7 2.8 0.4
Western Europe Dermark Netherlands France Germany Italy Other EC-12	64.0.00 64.0.00 64.0.00	18.1 10.2 1.2 1.2 0.3 0.3	16.2 7.7 7.1 8.7 7.0 0.0 5.0 0.0 5.0	2.2 2.2 2.2 2.2 0.9 0.9	18.7 10.6 2.4 2.4 0.0 0.0 0.0 0.3
Eastern Europe and former Soviet Union	0.8	0.1	0.5	1.7	1.9
Asia India Thailand Taiwan Japan China (Mainland)	00 00 00 00 00 00 00 00 00 00 00 00 00	# 2	47.09.00	24 25 25 25 25 25 25 25 25 25 25 25 25 25	20.0 1.9 2.0 0.8 0.8 7.7 6.0
Africa	6.0	1.3	1.1	1.4	1.0
Oceania Australia New Zealand	4.5	3.5	4.5 2.0 2.5	1.4	1.5
World	100.0	100.0	100.0	0.00	100.0

Regulations Encourage Reduced Number, Toxicity of New Pesticides

June 1995

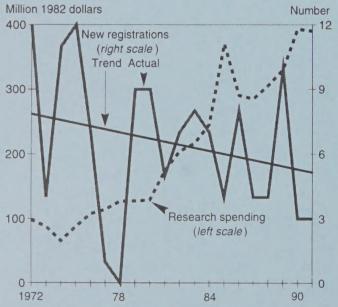
Contact: Michael Ollinger (202) 501-7418

esticide regulation in the United States has encouraged fewer, yet less toxic, new chemical pesticides. The number of new chemical pesticides registered by the EPA dropped by 49 percent between the 1972-76 and 1987-91 periods, and those with chronic health effects dropped by 86 percent between the 1972-76 and 1985-89 periods. The findings of a new report from USDA's Economic Research Service, World Agriculture and Climate Change: Economic Adaptations (AER-703), also suggest that pesticide regulations have encouraged firms to focus their chemical pesticide research on pesticides for larger crop markets and abandon pesticide development for smaller crop markets.

Concern over the health and environmental effects of chemical pesticide use caused Congress to enact major amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in 1972, 1978, and 1988. These amendments required that new and existing pesticides

Research spending, new chemical pesticide registrations, and pesticide regulation

Closer regulation of pesticides has contributed to a tripling of research costs and a 75-percent decline in pesticides approved for use since 1972.



meet strict health and environmental standards. As a result, pesticide companies have refocused their research on pesticides that degrade rapidly and have stopped developing pesticides that persist in the environment. The low-toxicity pesticides now account for more than half of sales of new pesticides.

The findings of this report also suggest that EPA chemical pesticide regulation has indirectly affected the number and type of pesticide firms. Each 10-percent increase in new pesticide regulatory costs causes a 2.7-percent reduction in the number of new pesticides. Higher regulatory costs contributed to an industrywide increase in research spending. This increase encouraged some small firms (companies with sales below the industry average) to leave the chemical pesticide industry. Although the exit of some companies has reduced the potential for greater innovation, the firms that remain are those better able to exist in a more stringent regulatory environment and, perhaps, more likely to develop less toxic pesticides.

To Order This Report...

The information presented here is excerpted from *Regulation, Innovation, and Market Structure in the United States Pesticide Industry,* AER-719, by Michael Ollinger and Jorge Fernandez-Cornejo. The cost is \$9.00.

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